September 2001

Book Review: *Grazing Management, 2nd ed.*

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BOOK REVIEWS

Grazing Management, 2nd ed. J.F. VALLENTINE. Academic Press, 525 B Street, Suite 1900, San Diego, CA 92101-4495. 2001. Hardback, 659 pp. $89.95. ISBN 0-12-710001-6.

Grazing management is critical in obtaining optimum production from grasslands and maintaining the grazing resource. Grazing management involves a complex relationship among the herbivores, vegetation, and other biotic and abiotic factors. Proper grazing management of grazing lands has a tremendous importance in agriculture and natural resource conservation because much of the earth's surface is covered with grazable vegetation. This book is an updated second edition of Grazing Management, which was first published in 1990. This edition is increased in size and coverage compared with the first edi-

tion. A lot of progress in grazing management has been made in the 11 years since the first edition was published, so this new edition is necessary to communicate the new information, concepts, and application. This edition has 16 chapters, an appendix consisting of a table of weights and measures, and a glossary of terms related to the study of grazing management.

Chapter 1 is the introduction to grazing management illustrating its importance and application, and the role of grazing as an ecosystem component. It has a very broad scope and introduces terminology and defines many kinds of grazing lands. Chapters 2 and 3 present a detailed summary of grazing herbivore nutrition and nutritional balance. Ruminant and cecal herbivore digestive systems are compared and the nutrient requirements of various types of herbivores are reviewed. In Chapter 3, monitoring nutritional status of grazing animals is addressed and nutritional aspects of forage are discussed along with antiquality agents. Chapter 4 relates grazing to seasons and illustrates the forage growth cycle, seasonal differences, and balancing supply and demand. Chapter 5 features the relationship between defoliation and plant physiology and morphology. A portion of the chapter is devoted to grazing effects on soil chemical and physical properties. Chapter 6 involves grazing activities and animal grazing behavior. Chapters 7 and 8 address spatial patterns in grazing and methods of manipulating grazing distribution. In these chapters, site preference is discussed and watering, fencing, salting, and handling of animals are related to grazing distribution. Chapter 9 addresses plant selectivity and animal preference. Chapters 10 and 11 discuss kind of grazing animals, including grazing animal intake and equivalence. Alternative large herbivores to traditional livestock species are included, too. Mixed grazing also is addressed in this chapter. Chapters 12 and 13 address grazing capacity and grazing intensity. Included here are the determination of stocking rates and effects of grazing intensities on sites, animals, and production economics. Chapters 14 and 15 discuss grazing methods and systems. These two chapters build on the others to relate principles to the application of grazing methods in the development of grazing systems. Chapter 16 is a completely new chapter which discusses grazing and the use of the grazing animal as an environmental, manipulative tool for biological plant control, habitat management, seeding, and forest regeneration.

The book is extremely thorough in the basics and application of grazing management. This edition includes much more on wild ungulates grazing as an ecosystem component than does the first edition. It is very well balanced and applies grazing principles across many kinds of grazing resources and grazing animals. The book is extensively documented with many literature references. Although there are world-wide references, the majority are from North America with strong coverage of western rangeland grazing. The principles developed in this book have application in many grazing lands with a wide variety of large ungulates.

The book contains numerous diagrams and flow charts that help with the understanding of concepts and interactions. There are many photographs in the book, although the quality varies. Photograph captions often make key statements, so the photographs have a way of focusing the reader's attention on key items, sometimes general concepts and sometimes specific points. The book contains a number of large summary tables that illustrate such things as livestock responses under various grazing management schemes and botanical composition of diets from studies of domestic and wild herbivores grazing various vegetation types. Each line of these tables represents a study and each is referenced. The 20-page glossary of grazing, plant, and animal terms provides an excellent resource and is essential for most readers. The book uses English units throughout which makes it useful for U.S. applications but may offer somewhat of a limitation for international applications. The appendix contains equivalent weights and measures which would assist in making key conversions. The basic principles and practices should apply throughout the world.

This book would be an excellent textbook for teaching an upper-class or graduate level college class concentrating on grazing management. It would provide the background and set the stage for class discussion. It would be a valuable resource for most instructors showing all of the aspects that could be considered in a grazing management course. The book is an excellent reference for anyone involved with grazing herbivores, either from the forage supply side or the animal utilization side. It would be especially valuable for those involved in advising graziers as to grazing methods and grazing systems because it is grounded in science and provides the basic grazing principles and the plant, animal, and environmental interactions. The book is remarkably complete and would be valuable for someone interested in domestic livestock grazing or for someone interested in grazing of wild herbivores. Dr. Vallentine has combined a career of practical experience with the published literature in producing, and now updating, this comprehensive book on grazing management.

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